Department of Toxic Substances Control

Edwin F. Lowry, Director
1001 Al@ Street, 25th Floor
P.O. Box 806
Sacramento, California 95812-0806

Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Gray Davis
Governor

TITLE 22

45-DAY PUBLIC NOTICE AND COMMENT PERIOD

PROPOSED REGULATIONS

MERCURY WASTE CLASSIFICATION AND MANAGEMENT

DTSC Reference Number: R-02-04

NOTICE IS HEREBY GIVEN that the Department of Toxic Substances Control (DTSC) proposes to add sections 66260.22, 66260.23, and 66261.50 (the latter in a new article 4.1) to chapter 11, and sections 66273.7.1 through 66273.7.10, 66273.21, and 66273.41 to chapter 23 of Title 22, Division 4.5 of the California Code of Regulations. DTSC also proposes to amend the Table of Contents and sections 66261.1, 66261.3, 66261.6, 66261.9 and 66261.101 of Chapter 11, section 66262.11 of Chapter 12, section 66264.1 of Chapter 14, section 66265.1 of Chapter 15, section 66268.1 of Chapter 18, section 66270.1 of Chapter 20, and sections 66273.1, 66273.5, 66273.8, 66273.9, 66273.13, 66273.14, 66273.19, 66273.33, and 66273.34 of title 22, California Code of Regulations. These proposed additions and amendments pertain to the classification and management of discarded mercury-containing products.

PUBLIC HEARING AND WRITTEN COMMENT PERIOD

DTSC will hold a public hearing on the proposed regulations on September 30, 2002 at 1:30 p.m. in the Central Valley Auditorium on the 2nd floor of the California Environmental Protection Agency (Cal/EPA) Building, 1001 Al@ Street, Sacramento. At that time any person may present statements or arguments, orally or in writing, relevant to the proposed regulations. Written comments received by DTSC by September 30, 2002 will be considered. DTSC may propose changes to the regulations based on relevant comments. Proposed regulatory changes may include (1) adding or removing hazardous waste listings, universal wastes, or universal waste standards; (2) amending additional regulations; or (3) separation of the proposed regulations into two rulemakings.

Representatives of DTSC will preside at the hearing. Persons who wish to speak are requested to register prior to the hearing. Pre-hearing registration will be conducted at the location of the hearing from 1:00 p.m. to 1:30 p.m. Registered persons will be heard in the order of their registration. Any other person wishing to speak at the hearing will be afforded the opportunity after the registered persons have been heard.

If you will require accommodations for the hearing impaired please contact DTSC at the address and phone number provided at this end of this Public Notice.

AUTHORITY AND REFERENCE

Authority: These regulations are being adopted under the following authority:

Health and Safety Code section 25140: Authority to prepare, adopt, and revise listings of hazardous wastes.

Health and Safety Code section 25150: Authority to establish standards for managing hazardous wastes.

Health and Safety Code section 25150.6: Authority for DTSC to exempt a hazardous waste management activity from one or more statutory requirements upon making specified findings.

Health and Safety Code section 25214.6: Makes mercury-containing light switches removed from motor vehicles subject to management under chapter 23 and any other applicable regulation adopted by DTSC.

Health and Safety Code section 58012: General authority for DTSC to adopt regulations.

Reference: These regulations are being adopted to implement, interpret, or make specific the following statutes:

Health and Safety Code section 25159.5: Directs DTSC to conform State regulations to the federal regulations as much as is consistent with protection of human health and the environment.

Health and Safety Code section 25179.4: Directs DTSC to make promotion of source reduction and promotion of recycling its top two priorities for the hazardous waste management program.

Health and Safety Code section 25212: Makes any person who removes a mercury switch from a major appliance a hazardous waste generator, subject to all applicable requirements. Makes failure to remove a mercury switch from a major appliance a violation of chapter 6.5 of the Health and Safety Code. Directs DTSC and the Certified Unified Program Agencies (CUPAs) to incorporate the above requirements into their respective inspection and enforcement plans and to coordinate the regulation of removed mercury switches that are moved between jurisdictions.

Health and Safety Code section 25214.6: Makes mercury-containing light switches removed from motor vehicles subject to management under chapter 23 and any other applicable regulations adopted by DTSC.

INFORMATIVE DIGEST/POLICY STATEMENT OVERVIEW

Summary of Existing Statutes and Regulations

1. Classification of Mercury-Containing Waste

Federal Criteria

Under the United States Environmental Protection Agency's (U.S. EPA's) regulations, a waste has any of four hazardous waste characteristics (ignitability, corrosivity, reactivity, or toxicity) is said to exhibit that characteristic and is generally classified as a hazardous waste. Additionally, a waste that appears on any of four lists of hazardous wastes is classified as a hazardous waste. The federal criteria for identifying hazardous wastes have been adopted in California, pursuant to section 25159.5 of the Health and Safety Code, in subsection (a) of section 66261.24 of the California Code of Regulations, title 22.[1]

A waste with a leachable concentration of a toxic contaminant equal to or exceeding the regulatory level for that contaminant is a hazardous waste. Leachable concentrations are determined by the Toxicity Characteristic Leaching Procedure (TCLP), published by U.S. EPA in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)*. The TCLP regulatory level for mercury is 0.2 milligrams per liter. A waste with a leachable mercury concentration that equals or exceeds this value is classified as a hazardous waste.

1. All subsequent regulatory references, unless otherwise indicated, are to the California Code of Regulations, title 22, division 4.5

California has also adopted U.S. EPA's four lists of hazardous wastes in article 4 of chapter 11. The four lists and their corresponding sections in the regulations are:

- The 'F' List—"Hazardous Wastes from Non-Specific Sources" (Cal. Code Regs., tit. 22, §66261.31);
- The 'K' List—"Hazardous Wastes from Specific Sources" (Cal. Code Regs., tit. 22, §66261.32); and
- The 'P' and 'U' Lists—"Discarded Commercial Chemical Products, Off-Specification Species. Container Residues and Spill Residues Thereof" (Cal. Code Regs., tit. 22, §66261.33).

Several mercury-containing wastes appear on the federal hazardous waste lists. They are:

- K071 Brine purification muds from the mercury cell process in chlorine production, in which separately prepurified brine is not used.
- K106 Wastewater treatment sludge from the mercury cell process in chlorine production.
- P065 Mercury fulminate.
- P092 Phenylmercury acetate.
- U151 Mercury.

A mercury containing waste that meets any of the above listing descriptions is classified as a hazardous waste.

California Criteria

California has adopted additional properties for the corrosivity and toxicity characteristics. Wastes that have only these properties (i.e., that do not have the properties found in the federal regulations), and do not appear on any of the four federal lists, are "California-only" or "non-RCRA" hazardous wastes.

Toxicity is generally the characteristic of concern with mercury-containing wastes. A mercury containing waste that is not identified as toxic under federal criteria is toxic under California's criteria if it has any of the following properties:

- Its extractable mercury concentration, as determined by the Waste Extraction Test (WET), equals or exceeds 0.2 milligrams per liter;
- Its total mercury concentration equals or exceeds 20 milligrams per kilogram of sample;

- It has an acute oral lethal dose $(LD)_{50}$ less than 2,500 milligrams per kilogram;[2]
- It has an acute dermal LD_{50} less than 4,300 milligrams per kilogram;[2]
- It has and acute inhalation lethal concentration $(LC)_{50}$ less than 10,000 parts per million as a gas or vapor;[2]
- It has an acute aquatic 96-hour LC_{50} less than 500 milligrams per liter;[2] or
- "It has been shown through experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties or persistence in the environment."

Appendix X of chapter 11 contains a list of nearly 800 chemicals that, if present in a waste, are presumed to make the waste hazardous. A number of the chemicals listed in Appendix X contain mercury. However, a waste that contains a chemical listed in Appendix X but does not exhibit a hazardous waste characteristic is not a hazardous waste.

2. Hazardous Waste and Universal Waste Management

Chapter 23, section 66273.1 *et seq.*, contains DTSC's Universal Waste Rule (UWR). The UWR allows certain hazardous wastes that are widely generated to be managed under standards that are appropriate for the hazards of the wastes and the types of entities that generate them. For persons who generate, consolidate, and transport universal wastes, these standards are easier to comply with than the requirements that govern the management of most hazardous wastes. These requirements will lead to higher rates of proper management and disposition of these widely-generated, relatively low risk wastes and better protection of public health and the environment. The standards that generators, consolidators, and transporters of most hazardous wastes must comply with are summarized below, followed by summaries of the standards that apply to handlers and transporters of universal waste.

Hazardous Waste Generator Standards

Generators of mercury-containing hazardous wastes are subject to requirements found in chapter 6.5 of the Health and Safety Code and in chapters 12 and 15 of California Code of Regulations, title 22. Some of important generator requirements are listed below. Generators must:

- Determine whether their waste is hazardous;

2. The LD_{50} and LC_{50} values are determined using animal toxicity tests. They represent the dose or concentration of a sample of waste that is required to kill half of a group treated animals.

- Obtain an EPA identification number;
- Accumulate hazardous waste in compliance with the applicable time limits specified in the Health and Safety Code section 25123.3 (90 days, 180 days, 270 days or 365 days);
- Keep records;
- Label/mark containers in which hazardous waste is accumulated;
- Prepare and implement emergency procedures/contingency plans;
- Train all employees in proper waste handling and emergency procedures, relevant to their responsibilities;
- Ensure that shipments of more than 50 pounds or 5 gallons of hazardous waste are carried by transporters that are registered with DTSC and have obtained an ID number; and
- Submit a biennial report.

Hazardous Waste Consolidation Facility Standards

A facility that consolidates mercury-containing hazardous wastes generated at offsite locations is required, as a hazardous waste storage facility, to obtain a permit from DTSC. Depending on whether or not the waste is federally regulated, either a full RCRA permit or a standardized permit may be required. Household hazardous waste collection facilities may consolidate mercury-containing hazardous wastes generated by households and Conditionally Exempt Small Quantity Generators. These facilities do not require full or standardized permits; instead, they may operate under the less stringent Permit-by-Rule authorization tier, pursuant to chapter 45.

Hazardous Waste Transporter Standards

Transporters of mercury-containing hazardous waste (other than those regulated as universal wastes) are subject to the standards for hazardous waste transporters found in chapter 13, and in article 6 of chapter 6.5 of the Health and Safety Code. Hazardous waste transporters must keep a valid registration issued by DTSC in their possession while transporting hazardous waste. Prior to transporting hazardous waste, a registered transporter must obtain an identification number and a registration certificate from DTSC. A transporter may only carry hazardous waste that is accompanied by a Uniform Hazardous Waste Manifest. The manifest must be signed by the generator and transporter, and must be kept in the transporter's possession.

Standards for Managing Elemental Mercury that is Non-RCRA Hazardous Waste

Section 66266.120 exempts persons who handle waste elemental mercury from some hazardous waste management requirements. However, these reduced management requirements apply only to elemental mercury that is non-RCRA hazardous waste. Waste elemental mercury that exceeds the TCLP of 0.2 micrograms per liter, and is not otherwise exempt under RCRA regulations, is subject to the full hazardous waste management standards outlined above. Up to 10 pounds of non-RCRA waste elemental mercury may be stored onsite without a permit; up to 10 pounds can be transported to a recycler without a registered hazardous waste hauler or uniform hazardous waste manifest.

Universal Waste Handler Standards

In lieu of the above requirements, handlers (generators and offsite consolidators) of universal waste (which currently includes lamps, batteries and thermostats):[3]

- Must obtain an EPA identification number only if they accumulate 5,000 kilograms or more of universal waste at any time;
- May accumulate universal wastes for up to one year without a permit;
- Must keep shipping records only if they accumulate 5,000 kilograms or more of universal waste at any time;
- Are subject to more flexible labeling/marking requirements;
- May train employees informally, (unless they accumulate 5,000 kilograms or more of universal waste at any time, in which case more formal training is required);
- Must contain any releases or residues of universal wastes, determine whether the resulting materials exhibit any hazardous waste characteristic and, if they do, manage the materials as hazardous wastes;
- May ship universal waste using a common carrier; and
- Are not subject to biennial reporting.

Cathode ray tube (CRT) materials are also universal wastes, pursuant to emergency regulations adopted by DTSC.[4] In addition to complying with the requirements for universal waste handlers listed above, CRT material handlers who accept more than five CRTs or more than 100 kilograms of CRT glass from offsite generators, or who generate more than 5,000 kilograms of CRT material per year, are required to notify DTSC and their local CUPA of their activities. The emergency regulations also allow CRT material handlers to treat or recycle CRT materials, provided they comply with a list of additional requirements. DTSC is currently developing permanent CRT regulations.

---

3 These universal wastes are managed pursuant to Articles 2 and 3 of chapter 23, section 66273.10, *et seq.*
4 CRT materials are regulated as universal wastes under Article 7 of chapter 23, section 66273.80, *et seq.*

Effective January 1, 2002, Health and Safety Code section 25201.16 designates hazardous waste aerosol cans as universal wastes. The requirements for generators and consolidators of intact aerosol cans are very similar to those for the handlers of batteries, lamps, and thermostats in chapter 23 of the regulations. In addition, the aerosol cans statute allows handlers who are not "offsite commercial processors" to puncture, drain, and/or crush universal waste aerosol cans, provided they comply with a list of additional requirements.

Universal Waste Transporter Standards

Persons who transport universal waste batteries, lamps, thermostats, or CRT materials are regulated as universal waste transporters. Universal waste transporter requirements, which are found in article 4 of chapter 23, are much reduced compared with general hazardous waste transportation requirements. A universal waste transporter is not required to register with DTSC, and is not required to obtain an EPA identification number. The Uniform Hazardous Waste Manifest is not required for universal waste transporters; instead, they may transport universal waste with a bill of lading.

POLICY STATEMENT

1. Background

A number of sites in California are contaminated with mercury to the extent that clean-up or other mitigation activities have been necessary. Similarly, some of the state's waters exceed water quality standards for mercury, triggering a requirement for development of Total Maximum Daily Loads (TMDLs) under the federal Clean Water Act. The severity of California's mercury contamination problem is further evidenced by fish advisories issued by California's Office of Environmental Health Hazard Assessment (OEHHA) for a number of California recreational waters. OEHHA has advised the public to restrict or eliminate consumption of sport fish from some of these water bodies because they contain unsafe levels of methylmercury. In spite of the contamination of California's environment with mercury, certain mercury-containing wastes continue to be classified and managed as non-hazardous waste, resulting in the preventable release of more mercury. Other mercury-containing wastes that are widely generated by clinics, hospitals, laboratories, small businesses, and households are classified as hazardous waste and are subject to stringent requirements that are more appropriate for industrially generated wastes. These wastes are more likely to be properly managed and recycled as universal wastes.

Mercury-Containing Wastes Currently Classified as Nonhazardous

Under California's current waste identification criteria, some mercury-containing wastes are classified as nonhazardous, and may legally be disposed in (non-hazardous) municipal landfills. Based on one national estimate, the Department of Toxic Substances Control (DTSC) calculates that approximately 37.2 short tons of mercury were disposed in California's non-hazardous landfills in 1995. Although there have been decreased uses of mercury in products, DTSC calculates that approximately 17.3 tons of mercury were still disposed in 2000.

DTSC has identified several types of mercury-containing products that are frequently classified as nonhazardous wastes when discarded. While the mercury concentrations in these wastes are relatively low, their management and disposal contribute significant amounts of mercury to the State's environment, due to their large volumes. The wastes include some fluorescent lamps, certain novelty items, and vehicles and large appliances that contain mercury switches.

The mercury found in lamps and novelties can enter the environment when the products break during use, handling, or disposal. The mercury contained in switches is released when an appliance or vehicle is baled, sheared, crushed, or shredded for recycling. Some of the mercury is emitted directly to air, while some remains associated with the non-metallic fluff that is generated during shredding. Shredder fluff, which is produced after shredding both automobiles and appliances, is often used as daily cover in non-hazardous Class 3 landfills in California. Public Resources Code section 42175 already requires the removal of mercury switches from appliances prior to crushing them or transferring them to a baler or shredder for recycling. However, mercury switches generally are still not removed from vehicles prior to recycling.

Management Standards for Widely Generated Mercury-Containing Wastes

Many widely generated mercury-containing wastes are currently classified and fully regulated as hazardous wastes. Generators of these wastes must comply with numerous requirements, including labeling standards, accumulation time limits, manifesting, record retention, etc. Before they may accept them from offsite generators, consolidators of these wastes currently must comply with lengthy and relatively expensive permitting or authorization requirements.

Management standards have been adopted for several widely-generated hazardous wastes in DTSC's Universal Waste Rule. Recent legislation [Senate Bill (SB) 633 (stats. 2001, ch. 656)] added section 25241.7 to the Health and Safety Code, which requires that

mercury light switches removed from motor vehicles also be managed under the Universal Waste Rule. However, waste-specific management standards for vehicle light switches, and for many other widely-generated mercury-containing wastes, have yet to be adopted.

Large volumes of discarded mercury-containing products produced by certain businesses, government agencies and households in the State continue to be disposed in municipal landfills. In addition to vehicle light switches, these hazardous wastes include such common products as mercury fever thermometers, mercury-added novelty items, and products that contain mercury switches. DTSC believes that allowing these products to be managed as universal wastes would more effectively promote their proper management.

2. Objectives

The objective of these proposed regulations is to encourage the following:

1. pollution prevention through the use of nonmercury containing products,
2. development of products that use mercury alternatives, and
3. recycling of mercury containing waste.

These objectives will be accomplished by:

1. listing intentionally added mercury-containing products that can be recycled or have a nonmercury alternative as hazardous when discarded and
2. developing universal waste management standards to facilitate the collection, storage, and recycling of the mercury-containing waste.

Currently, some widely-generated products that contain mercury are not classified or regulated as hazardous waste. Consequently, the mercury they contain is more likely to enter the State's environment during management and disposal than would be the case if the products were regulated as hazardous wastes.

The proposed regulations would designate a list of mercury-containing products as hazardous wastes when discarded. The products were chosen based on two criteria: the feasibility of recycling them, and the availability of mercury-free substitutes. These criteria are consistent with section 25179.4 of the Health and Safety Code, in which the Legislature directs DTSC to make promotion of source reduction and recycling its two top priorities for the hazardous waste management program. These mercury-containing wastes would be designated as hazardous wastes and universal wastes. Other mercury-containing wastes are currently hazardous wastes and would be designated as universal wastes with these proposed regulations.

In addition to listing these discarded mercury-containing products as hazardous wastes, DTSC proposes to adopt new standards for managing them. DTSC also proposes new management standards for several categories of discarded mercury-containing products that are hazardous under existing criteria, as universal wastes.

Designating these hazardous wastes as universal wastes would impose appropriate requirements for collection, storage, and transportation to a destination facility, where the mercury-containing wastes will be recycled. In some special instances, disposal is allowed in a hazardous waste landfill.

3. Proposed Regulations

Proposed List of Mercury-Containing Hazardous Wastes

The proposed regulations would add a new article 4.1 to chapter 11. Article 4.1 contains a list of mercury-containing products that, when discarded, would be classified as hazardous wastes. Four waste types will be listed in article 4.1: mercury-containing motor vehicle switches, non-automotive mercury switches, lamps that contain mercury and mercury-added novelties. Mercury-containing wastes not appearing on the list would continue to be identified as hazardous or nonhazardous using the existing federal lists and the hazardous waste characteristics in chapter 11.

Proposed Universal Waste Management of Mercury-Containing Wastes

The regulations would establish new standards for the management of mercury-containing wastes as universal wastes. They would include standards for both the wastes listed in article 4.1, and for several other widely generated wastes that are hazardous due to their mercury concentration. The new universal waste management standards for these wastes would be added to the existing standards for batteries, lamps, thermostats, and CRTs in chapter 23.

Under the proposed regulations, generators would be required to properly dispose of their mercury-containing wastes, but would be subject to less restrictive storage and shipment requirements as universal waste handlers. In most cases, universal waste management would be conditioned on ultimately recycling the mercury contained in the discarded products. Currently, California's only mercury retorts (facilities that reclaim mercury) are limited to processing waste fluorescent lamps. All other mercury wastes for which recycling would be required would have to be sent to out-of-state facilities. Permitting requirements for these out-of-state facilities would depend on the individual state's hazardous waste

permit requirements.

As with the current universal wastes, common carriers would be allowed to transport the proposed new mercury-containing universal wastes on bills of lading rather than hazardous waste manifests. In order to simplify transportation; the use of registered hazardous waste transporters would not be required. As is true for the current universal wastes, offsite facilities could accumulate the new mercury-containing universal wastes for up to one year without authorization from DTSC.

4. Reason for Proposed Regulations

Why DTSC Proposes to List Mercury Containing Wastes as Hazardous Wastes

Discarded mercury-containing products have been selected for designation as hazardous wastes based on the availability of non-mercury alternatives and on the feasibility of recycling the products' mercury. DTSC believes this designation will encourage the development and use of non-mercury substitutes, as required by section 25179.4 of the Health and Safety Code. DTSC also believes that allowing management of these and other widely generated mercury containing products under the universal waste standards will maximize the rate of diversion from the nonhazardous waste stream to hazardous waste recycling and disposal. When recovery of the mercury in a product is feasible, managing it as universal waste will be contingent on ultimately recycling it. This will provide a strong incentive for mercury recycling.

The proposed regulations would list certain mercury-containing hazardous wastes in a new article 4.1 of chapter 11. The list is modeled after the RCRA hazardous waste lists, which have been adopted in article 4 of chapter 11. Each listed waste is assigned a unique 'M' number. Descriptions of each listed waste type give specific descriptions of the wastes that are and are not included. For some wastes, the listing description includes information on when they are considered generated.

The new listed wastes are:

- M001: Mercury-containing motor vehicle switches and vehicles that contain them.

Mercury switches are used in many makes and models of vehicles, both foreign and domestic. These switches are used to control lights in vehicle hoods and trunks, and are used in antilock brake systems. Each switch contains approximately one gram of mercury. Removed from a vehicle, the switches would currently be classified as hazardous wastes, because their total mercury concentration exceeds the Total Threshold Limit Concentration

(TTLC) for mercury of 20 milligrams per kilogram. When the total mass of even a small vehicle is taken into account, however, the amount of mercury contained in its switches is generally below the thresholds that would make the vehicle hazardous waste. DTSC estimates that between 0.75 and 1.5 tons of mercury are contained in the vehicles scrapped annually in California. Little of this mercury is currently recycled or disposed as hazardous waste.

These regulations would designate discarded mercury switches, and discarded vehicles that contain them, as hazardous wastes, regardless of the total mass of the vehicle. Under the proposal, hazardous waste would be considered generated when a dismantler decides to crush, bale, shred, or shear a vehicle that contains mercury switches. The entire vehicle would be a listed hazardous waste, unless and until the dismantler removes all of its mercury switches. (Switches that could not be removed with reasonable effort due to *accidental* damage sustained by a vehicle would not cause the vehicle to be classified as a hazardous waste. Waste derived from crushed or shredded vehicles from which all switches had not been removed would not be in the listing description for 'M001' hazardous wastes. Such waste would be characterized as hazardous or nonhazardous using the existing hazardous waste characteristics.)

- M002: Non-automotive mercury switches, and products that contain them.

Mercury switches are used in a variety of products besides vehicles. Smaller products that contain such switches are already hazardous wastes when discarded, because of their relatively small mass relative to the amount of mercury in the switches. Larger, heavier products that have only a single switch containing one gram of mercury (such as some washing machines) may not be hazardous under the current hazardous waste identification criteria. A product weighing more than 50 kilograms (or 110 pounds) and containing 1 gram of mercury would not exceed mercury's TTLC of 20 milligrams per kilogram (however, such a product could potentially exceed mercury's STLC or TCLP limits of 0.2 milligrams per liter).

These proposed regulations would designate discarded non-automotive mercury switches, and products that contain these switches, as hazardous wastes. The entire product would be a listed hazardous waste, unless and until the generator removed all of the switches. DTSC's intention in designating discarded products with mercury switches as hazardous wastes is to ensure the removal of the switches prior to crushing or otherwise processing of products in ways that could cause mercury to be released.

- M003: Mercury-containing lamps and products that contain them.

All fluorescent lamps, and some other lamp types, contain mercury. Often, discarded fluorescent, mercury vapor, and high intensity discharge (HID) lamps are hazardous wastes because they exhibit toxicity due to their mercury. However, samples of some currently available fluorescent lamps, while not free of mercury, were determined not to be hazardous wastes under the toxicity characteristic. These lamps may be discarded in the municipal (non-hazardous) waste stream in unlimited quantities. Anecdotal evidence suggests that sales of these "non-hazardous" lamps have increased. If more of these lower-mercury lamps are purchased because people wish to avoid managing them as universal wastes or recycling or disposing them as hazardous waste, the amount of mercury entering California's environment could actually increase.

- M004: Mercury-added novelties.

SB 633 (Stats. 2001, ch. 656) added section 15027 to the Public Resource Code, which bans the manufacture and sale of mercury-added novelties, effective January 1, 2003. The bill defines a mercury-added novelty as "a mercury-added product intended mainly for personal or household enjoyment or adornment. A 'mercury-added novelty' includes, but is not limited to, any item intended for use as a practical joke, figurine, adornment, toy, game, card, ornament, yard statue or figure, candle, jewelry, holiday decoration, and item of apparel, including footwear." DTSC is aware of one novelty, a "quicksilver maze," that contained a ball of liquid mercury. Most other novelties likely contain mercury in switches, button cell batteries, or paint applied to their surface. The quicksilver maze would very likely exceed hazardous waste thresholds, if tested. Other novelties might not be classified as hazardous under current regulations. These proposed regulations would designate all novelties meeting the listing description (which is repeated in the regulations, verbatim, from the definition in SB 633) as hazardous wastes.

Why DTSC Proposes to Allow Universal Waste Management of Certain Mercury Containing Hazardous Wastes

The proposed regulations include new universal waste management standards for discarded mercury-containing products. As with the existing universal wastes, the standards would apply to these new universal wastes in lieu of full hazardous waste management requirements. The existing general requirements for universal waste handlers, transporters, and destination facilities would also apply to persons managing these wastes. In developing their respective universal waste rules, U.S. EPA and DTSC used several criteria to determine whether a given category of hazardous waste should be included as universal wastes. The criteria include:

- The waste is commonly generated by a wide variety of types of establishments (including, for example, households, retail and commercial businesses, office complexes, conditionally exempt small quantity generators, small businesses, government organizations, as well as large industrial facilities);
- The waste or category of waste is generated by a large number of generators, frequently in relatively small quantities by each generator;
- Systems to be used for collecting the waste or category of waste (including packaging, marking, and labeling practices) would ensure close stewardship of the waste;
- The risk posed by the waste or category of waste during accumulation and transport is relatively low compared to other hazardous wastes; and
- Regulation of the waste or category of waste as universal waste will facilitate safe and effective collection and recycling.

DTSC has evaluated each waste it is proposing to include in an expanded Universal Waste Rule against these criteria. DTSC believes that each of the products it proposes to add to the Universal Waste Rule meets most or all of them.

Explanation of Each New Universal Waste Category Being Proposed

- Mercury-containing motor vehicle switches, and vehicles that contain them (M001 Wastes)
- Non-automotive mercury switches and products that contain them (M002 Wastes)
- Mercury thermometers

The thermostats included in the existing universal waste regulations contain mercury tilt switches, which are mounted on bimetallic coils. Therefore, management of one category of mercury switches is already part of the Universal Waste Rule. The current proposal would broaden the rule's applicability to all mercury switches. As is the case with mercury thermostats, non-mercury alternatives to the mercury switches used in vehicles and other products are readily available. The risks posed by mercury switches in general are also very similar to those posed by those in thermostats. These facts support DTSC's decisions to add switches to the Universal Waste Rule and to establish very similar management standards to those for thermostats.

In order to encourage the removal of mercury switches, vehicles and other products that contain them would be listed hazardous wastes under the proposal, whether or not they exhibited toxicity for mercury. Removal of mercury switches from vehicles and other products would be allowed under the proposed universal waste management standards. The switches covered by these two listings are essentially identical once they are removed.

For this reason, management standards for vehicle and non-vehicle mercury switches are included in the same subsections (one covering small quantity handlers, the other large quantity handlers). Standards for management of mercury thermometers are also combined with those for switches because, while switches and thermometers serve entirely different purposes, they contain similar amounts of encapsulated mercury (often in glass), and therefore their management poses very similar risks.

- Dental amalgam wastes

Dental amalgam is composed of approximately 50 percent mercury. Its mercury concentration exceeds the TTLC limit of 20 parts per million and it is normally classified as hazardous waste. Amalgam waste that is recycled and qualifies as scrap metal is exempt from hazardous waste regulations. Other amalgam wastes, such as fines, sludges, single-use traps, etc., are currently regulated as hazardous wastes. Under the proposal, all amalgam wastes could be managed as universal wastes. Dental amalgam waste meets DTSC's criteria for inclusion in the Universal Waste Rule: it is widely generated, it is recyclable, and non- mercury substitutes are available.

- Pressure or vacuum gauges (manometers, barometers, sphygmomanometers, etc.)

These products contain relatively large quantities of mercury and, when discarded, would generally be classified as hazardous wastes. They are also generated relatively widely, in relatively small quantities by each generator. The mercury in a vacuum or pressure gauge cannot be entirely encapsulated. In order to work, the surface of the mercury must be directly exposed to the gas whose pressure is being measured. While they meet the criteria for management as universal wastes, mercury gauges require extra care during handling due to their openings and the large amount of mercury they contain. The proposed management standards for mercury require that gauges be kept upright, that openings through which mercury could escape be closed, and that gauges be sealed in bags and packed to avoid breakage. Some handlers would also be allowed to drain the mercury from gauges, provided they comply with a number of requirements discussed later.

- Mercury-added novelties

This is a relatively broad, "catch all" category of products, whose definition has been taken directly from SB 633 (in Pub. Resources Code, sec. 15027). Many mercury-added novelties meet the descriptions in the "applicability" sections for other universal wastes. Novelties whose only mercury is contained in batteries can be managed under the standards for universal waste batteries; novelties whose only mercury is contained in

switches can be managed under the standards for universal waste switches and thermometers. Specific management standards are established for novelties that contain liquid mercury, and for those that are painted with mercury-containing paint.

- Mercury counterweights and dampers

This new universal waste category includes products that take advantage of mercury's high density. Like the other new universal wastes DTSC proposes to add, these products are widely generated and are more likely to ultimately be sent for hazardous waste recycling or disposal as universal wastes than as fully regulated hazardous wastes. In developing the proposed management standards for these products, it was assumed that they generally contain a relatively large amount of mercury, but that it is fully contained, and that the products are not especially fragile.

- Mercury dilators

The mercury contained in these medical devices is fully enclosed in flexible tubing. The dilators are widely used in hospitals and clinics, statewide. They contain a relatively large amount of liquid mercury, which should be readily recyclable. Further, tungsten powder has replaced mercury in the esophageal dilators manufactured in recent years. As with the other wastes for which DTSC is proposing universal waste management, mercury dilators meet the criteria for designation as universal wastes.

- Mercury containing rubber flooring

DTSC is aware of at least one brand of rubber flooring used in gymnasiums in the 1970s that contained mercury. DTSC believes that the manufacture of this material ceased in the 1970s, but it may continue to be replaced or disposed from time to time. Some of this flooring may contain sufficient mercury to exceed the TCLP threshold for mercury, and consequently, is classified as hazardous waste when discarded. This proposal would allow universal waste management of rubber flooring that is hazardous due to its mercury content.

- Mercury gas flow regulators

Some older residential gas meters (installed prior to 1961) contain mercury gas flow regulators, each of which can contain 100 grams of mercury. The handlers of these meters are, in most cases, gas company employees or their contractors. Due to the large amount of mercury these regulators contain, they would be classified as hazardous under the existing criteria, as would the meters in which they are found. The proposal would facilitate the proper removal, handling, transportation, and storage of mercury flow regulators by gas company personnel.

Environmental and Public Health Benefits of Universal Waste Management of Certain Hazardous Wastes Benefits Public Health and the Environment

In the Initial Statement of Reasons for its original Universal Waste Rule, DTSC provided the rationale for regulating selected hazardous wastes less stringently to facilitate proper management, recycling and disposal. The arguments used for the original three wastes (lamps, batteries, and thermostats) apply equally to the wastes DTSC proposes to add in this rule. DTSC believes that regulating these products under universal waste standards will result in more recycling or proper disposal.

CEQA COMPLIANCE

DTSC has prepared an Initial Study and a draft Negative Declaration which indicates no significant effect from the project on the environment. These documents are available for review with the rulemaking file and are also being noticed and circulated for comment pursuant to the requirements of the CEQA Guidelines. A copy of the draft CEQA document is posted on the DTSC Internet site at http://www.dtsc.ca.gov.

PEER REVIEW

DTSC is proceeding with a peer review for the scientific basis of these regulations pursuant to Health and Safety Code section 57004.

BUSINESS REPORT

DTSC has determined that this rulemaking will not require businesses to write a new report.

FISCAL IMPACT ESTIMATES

Mandates on Local Agencies and School Districts: DTSC has made a preliminary determination that adoption of these regulations will create no new local mandates.

Estimate of Potential Cost or Savings to Local Agencies Subject to Reimbursement: DTSC has made a preliminary determination that adoption of these regulations will not impose a local mandate or result in costs subject to reimbursement pursuant to part 7 of division 4, commencing with section 17500, of the Government Code or other nondiscretionary costs or savings to local agencies.

Local agency generators would incur estimated cumulative costs of less than $44K in fiscal

year 2005/2006 and less than $110K each year thereafter for managing previous non-hazardous lamps as universal waste, as adjusted for inflation. Certified Unified Program Agencies (CUPAs) would inspect businesses that generate the newly-designated universal wastes. However, these businesses generate other universal wastes and are already subject to inspection by CUPAs. CUPA inspections of generators of the new universal wastes would be incorporated into their existing inspection programs. CUPAs would incur minor additional costs only when complaints specific to the new universal wastes are received. CUPAs are authorized by Health and Safety Code section 25404.3 to assess fees to recover the costs of their programs.

Costs or Savings to Any State Agency: There is an increased cost impact to the State and local agencies of less than $44K in fiscal year 2005/2006 and a cost of less than $110K each year thereafter for managing previously nonhazardous lamps as universal waste, as adjusted for inflation for local agencies. These costs are not reimbursable because they are incurred by agencies as regulated entities identical to costs incurred by other hazardous waste generators.

Costs or Savings in Federal Funding to the State: State agencies would incur estimated cumulative costs of less than $12K in fiscal year 2005/2006 and less than $30K each year thereafter, as adjusted for inflation, for managing previous non-hazardous lamps as universal waste. DTSC would incur minor costs to train CUPAs and industry in the new regulations. These costs would be absorbable because the associated workload would be incorporated into DTSC's existing training on universal wastes.

Effect on Housing Costs: DTSC has made an initial determination that there will be no impact on housing costs.

Cost Impacts on Representative Private Persons or Businesses: Many businesses in California would generate some currently nonhazardous fluorescent lamps. These businesses would experience a minor cost increase for managing these low-mercury lamps as universal waste rather than nonhazardous waste. A much smaller number of businesses generating the other wastes affected by these regulations will see a savings. They include medical and dental offices, hospitals and laboratories generating mercury devices, appliance repair companies, and some gymnasium operators.

All businesses generating fluorescent lamps that are currently classified as nonhazardous in California would incur minor costs under the proposed regulations. Auto dismantlers and recyclers would incur the largest costs increases--approximately $2650 per dismantler, at most. Distribution of costs for lamps is unknown since generation rates not known. Although difficult to quantify, businesses including medical offices, appliance repair

and recycling, dental offices, and other firms would experience a minor savings compared with the full hazardous waste management system that would be required if the proposed regulation is not enacted.
Households would be subject to the reduced standards of the Universal Waste Rule instead of the more complex and extensive general standards of the Hazardous Waste Control Law. The major costs facing households are associated with potential increased trips for disposal of accumulated universal wastes. However, households would be expected to transport universal waste, along with other hazardous wastes, to existing household hazardous waste collection programs during the same trip. The number of trips would remain the same, which nullifies the cost impacts due to transportation. DTSC expects that universal waste handler provisions would make it easier for private businesses to begin offering consolidations services to households that do not have access to public facilities. These services are not currently available to most households because current requirements make these services unprofitable.

All generators of currently hazardous mercury containing devices that comply with universal waste management standards would incur lower costs than under hazardous waste management.

There may be small costs to businesses for managing newly listed wastes, but these are not expected to be significant. DTSC estimates, for example, that the cost to remove and recycle two mercury switches from automobiles would be about $6.50 per automobile.

Significant Statewide Adverse Economic Impact on Businesses: DTSC has made an initial determination that the proposed regulations would not have a significant statewide adverse economic impact directly affecting businesses, including the ability to compete with businesses in other states.

Assessment Statement:

> **(A) Creation or elimination of jobs within California:** The proposed regulations would not cause the elimination of jobs within California and would create a small number of jobs. Since the proposed regulations allow universal waste generators to avoid the costs of full hazardous waste management, the proposed regulations would not lead to the elimination of jobs within California. Since the transport and recycling fees paid by generators are low on a per-firm basis, no jobs are likely to be eliminated within these entities. It is expected that increased demand for transport and recycling services may lead to a small number of new jobs in those sectors.

(B) Creation of new businesses or the elimination of existing businesses within California: Since the proposed regulations allow universal waste generators to avoid the costs of full hazardous waste management, the proposed regulations would not lead to the elimination of existing businesses within California. The increased demand for transport and recycling services is expected to be met via an expansion of existing businesses.

(C) Expansion of businesses currently doing business in California: The increased demand for transport, consolidation, and recycling services is expected to be met via an expansion of existing businesses.

Effect on Small Businesses: DTSC has determined that provisions of this rulemaking may have an effect on small businesses.

CONSIDERATION OF ALTERNATIVES

DTSC must determine that no reasonable alternative it considered or that has otherwise been identified and brought to the attention of DTSC would be more effective in carrying out the purpose for which the action is proposed, or would be as effective and less burdensome to affected private persons than the proposed action. DTSC invites interested persons to present arguments, with respect to the various options, at the scheduled hearing, or during the written comment period.

AVAILABILITY OF TEXT OF REGULATIONS, STATEMENT OF REASONS, AND HSC 25150.6 ANALYSIS

Copies of the text of the proposed regulations, Public Notice, Initial Statement of Reasons, and HSC 25150.6. These analyses are posted to DTSC=s Internet site at http://www.dtsc.ca.gov or may be obtained from Ms. Joan Ferber of DTSC=s Environmental Analysis and Regulations Section as specified below. The information upon which DTSC relied in developing the regulations is also available at the address listed below.

POST-HEARING CHANGES

After the close of the comment period, DTSC may adopt the proposed regulations. If substantial changes are made, the modified text will be made available for comment for at least 15 days prior to adoption. Only persons who request the specific proposed regulations and those who provide written comments on these specific regulations will be sent a copy of the modified text, if substantive changes are made.

Once a regulation has been adopted, DTSC will prepare a Final Statement of Reasons which updates the Initial Statement of Reasons, summarizes how DTSC addressed comments, and includes other material, as required by Government Code section 11346.9. Copies of the Final Statement of Reasons, when completed may be obtained

from Ms. Joan Ferber at the address listed below. A copy of the Final Statement of Reasons will also be posted on DTSC's Internet site at http://www.dtsc.ca.gov.

CONTACT PERSONS

Inquiries regarding the technical aspects of proposed regulations may be directed to Mr. André Algazi of DTSC at (916) 324-3114. If Mr. Algazi is unavailable, please call Ms. Corey Yep (916) 324-5772. However, such oral inquiries are not part of the rulemaking record.

Statements, arguments, or contentions must be submitted in writing, or may be presented orally or in writing at the public hearing, in order for them to be considered by DTSC before these regulations are adopted, amended, or repealed. To be included in this regulation package's mailing list, and to receive updates of this rulemaking, please leave a message on the DTSC mailing list phone line at (916) 324-9933, or e-mail: regs@dtsc.ca.gov.

Please direct all written comments, procedural inquiries and requests for documents by mail, e-mail or fax to:

Ms. Joan Ferber, Regulations Coordinator
Environmental Analysis and Regulations Section
Department of Toxic Substances Control

Mailing Address: P.O. Box 806
Sacramento, CA 95812-0806

E-mail Address: regs@dtsc.ca.gov

Fax Number: (916) 323-3215

Ms. Ferber's phone number is (916) 322-6409. If Ms Ferber is unavailable, please call Ms. Nicole Sotak at (916) 327-4508 or Mr. James McRitchie at (916) 327-8642.

Dated: 8/12/02

Original Signed By:
James McRitchie, Chief
Office of Environmental Analysis,
Regulations and Audits